SANDIA LAB NEWS

VOL. 20, NO. 15, JULY 26, 1968

Will Produce 3000 Rads

Giant Flash X-Ray Machine Test Fired

Hermes-II, a giant machine being constructed in Area V to simulate the flash of gamma rays from nuclear weapons, has been test fired. The high-voltage generator of the machine has been charged to 70,000 volts to store 500,000 joules of electrical energy and has been triggered to discharge the energy into a load in a single 0.09-microsecond, 10-million-volt pulse. This achievement is the forerunner of several steps in making the machine fully operational to produce unprecedented radiation intensities with laboratory sources.

Initially, Hermes-II will be operated with a nominal energy store of 500,000 joules and at an x-ray tube voltage of 13 million volts. At this level the output of x-rays will produce 3000 rads of radiation dose in a sample one meter from the x-ray target. (A rad is a unit of radiation dosage equivalent to absorbing 100 ergs, or 10^{-5} joules, in one gram of an exposed sample. In comparison, a dental x-ray produces about 0.5 rad in tissue.)

The high-voltage generator has been designed with a capacity to store a maximum energy of one million joules. Radiation produced by Hermes-II will be directed into materials, components and systems to study the resulting effects.

Hermes-II has been under development for the past two years by the Radiation Source Research Division 9143 supervised by T. H. Martin. Scientists from the United Kingdom assisted Sandia in developing the generator by providing some of the research data which was critical to the design.

Operating principles of Hermes-II were studied by the Division with a one-tenth scale model called Hermes I, which has been in use for more than a year. With the success of Hermes-I assured, construction of Hermes-II began in August 1967.

The generator is contained in a giant bottle-shaped steel tank measuring over 80 feet in length and a maximum of 22 feet in diameter. The tank encloses the principal components: a bank of 186 1.0-microfarad, 100-kilovolt capacitors to store the initial charge of electrical energy; a Blumlein electrical transmission line, and the x-ray tube. The tank is filled with 150,000 gallons of high-quality mineral oil for electrical insulation when the generator is operated.



HERMES II capacitors will store a maximum of one million joules to provide the basic energy of the machine. Interior of steel tank will be filled with 150,000 gallons of mineral oil. Ray Clark is silhouetted at front of tube.

The machine will operate in three stages:

First, the capacitors will be charged in parallel with electrical energy.

Second, the capacitors will be discharged in series via spark gaps into the Blumlein voltage multiplier which consists of three coaxial steel cylinders, the outermost of which is the pressure tank wall.

Third, when a switch is triggered, energy in the Blumlein multiplier will be discharged into the x-ray tube to produce a high-current electron beam. The beam will be directed against a tantalum target, where the interaction of electrons with atoms will produce x-rays by the bremsstrahlung effect. Duration of the radiation burst will be 70 billionths of a second, about the time required for light to travel 70 feet.

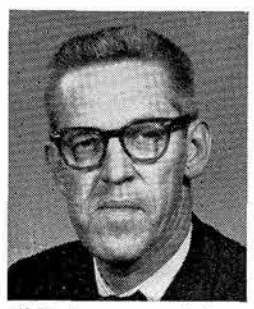
Hermes-II is a notable technical and economic achievement. The generator has cost $900,000, including design and construction costs. Costs were held to a minimum by having the giant steel container for the generator fabricated in place by

(**Continued on Page Two**)



SOUTHWEST EMPLOYER CONFERENCE on Mexican American and Indian Employment Problems, held recently in Albuquerque, found this trio discussing new goals of cooperation: (l to r), President Hornbeck; Wendell Chino, president of the National Congress of American Indians; and Vicente T. Ximenes, EEO commissioner and chairman of the Inter-Agency Committee on Mexican American Affairs.

AEC Assignment For L. F. Parman

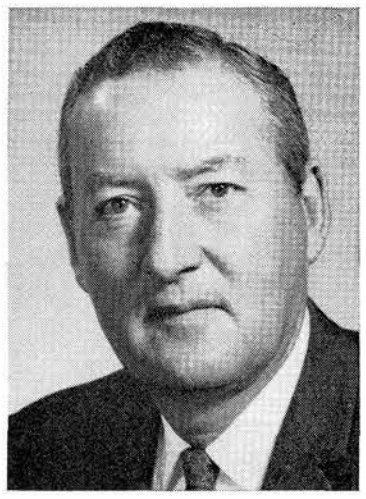


Lee F. Parman, manager of Technical Libraries Department 3420, is on leave from Sandia to serve as deputy librarian for the AEC Headquarters in Germantown, Md.

In his new position, Lee is responsible for supervising the library's day-to-day operation (including branches in downtown Washington and at Bethesda) and developing library policies. "In addition," he says, "I am looking forward to working on the AEC's committee on COSATI (Committee on Scientific and Technical Information)." This organization coordinates—on an executive level—information activities such as the DOD, Department of Agriculture, HEW, AEC, NASA, etc.

Lee has been with Sandia since 1953, first as a technical writer and later as supervisor of a technical information division. He became associated with the operation of Sandia's technical libraries in 1956 and was promoted to department manager four and a half years ago.

In the fall of 1966 Lee was director of the Technical Information Center of the U. S. Atomic Energy Commission's Service Center in Managua, Nicaragua. The center was part of the "Atoms in Action" Nuclear Science Demonstration presented overseas to encourage the exchange of scientific information.



W. Lee Hancock New Director of Security 3500

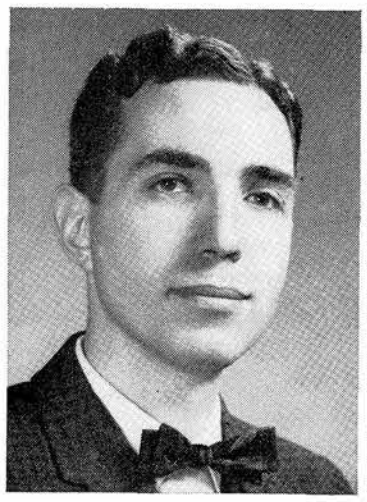
W. Lee Hancock, assistant manager for operations of the AEC's Albuquerque Operations Office, will join Sandia Laboratories Aug. 1 to head the newly created Security Directorate 3500.

Mr. Hancock began his government service in 1937. He joined the Federal Bureau of Investigation upon graduation from Creighton University where he earned a Doctor of Law degree.

From 1946 to 1952 he was in private employment. In 1952, he returned to government service as a member of the Atomic Energy Commission's Division of Security in Washington, D. C.

In 1956 he transferred to the Albuquerque Operations Office of AEC as director of security. He subsequently served as Area Manager, Sandia Area Office, and in 1964 was appointed assistant manager in charge of weapons programs. He has been assistant manager for operations since March 1967, in charge of the weapons production division, quality assurance division, non-weapons activities division and operational safety.

In 1963 he served as United Community Fund campaign chairman. From 1960 to 1964 he was a member of the UCF board of directors.



L. C. Hebel Heads 5200 August 19

L. C. Hebel is the newly-appointed Director of Physics Research 5200, effective Aug. 19. He is currently Head, Reentry Physics Department, Bell Telephone Laboratories at Whippany, N. J.

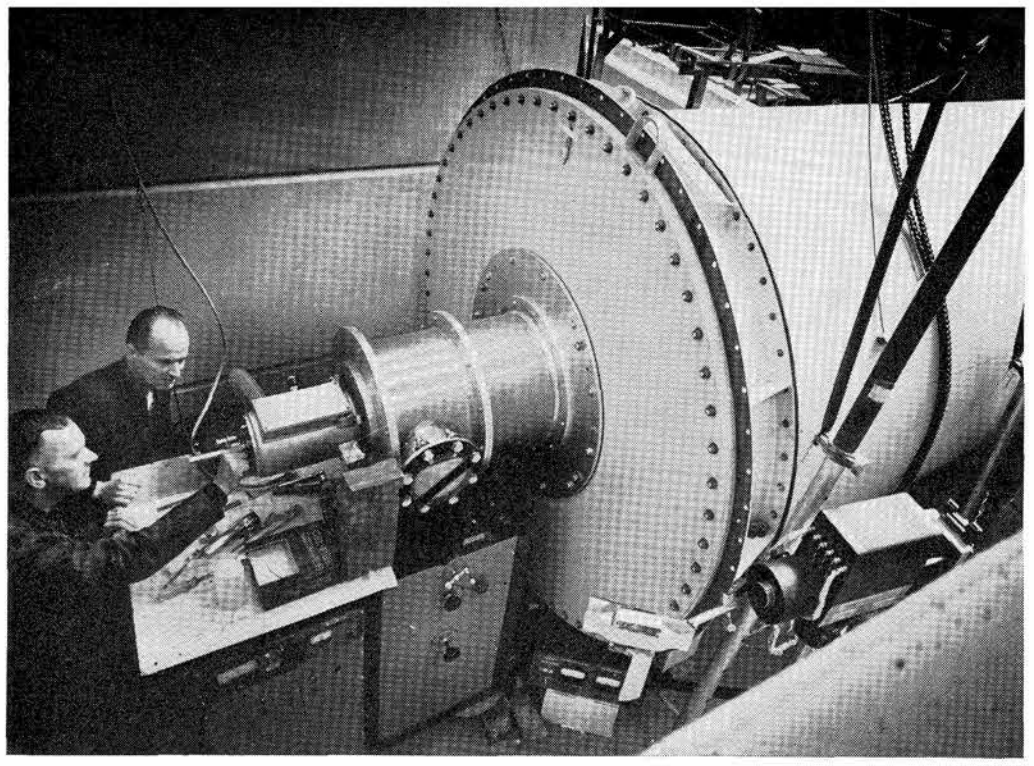
Mr. Hebel joined Bell Telephone Laboratories in 1957 and was first engaged in research in magnetic resonance and infrared measurements in solids.

From 1961 to 1965 he was a member of the BTL Reentry Panel.

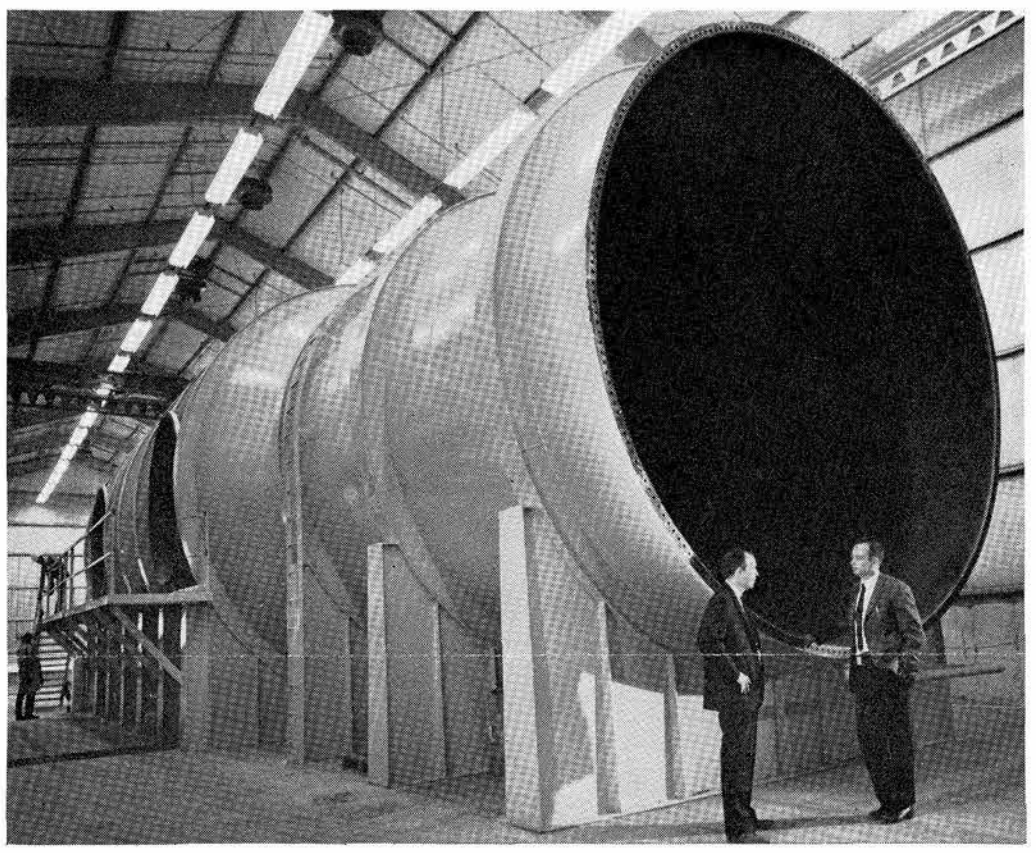
He has held his present position, responsible for research in plasma physics for the BTL Reentry Measurements Program, since 1965.

He earned his BA degree from DePauw University in 1952. He received his MS and PhD degrees in physics from the University of Illinois in 1954 and 1957, respectively.

He is a Fellow in the American Physical Society and a member of Sigma Xi science honorary and Phi Kappa Phi scholastic honorary.



HERMES I, a one-tenth scale model of HERMES II, was built to help solve the complex problems involved in creating the world's largest flash x-ray generator. The model is now a useful device in Sandia's radiation effects program. Jim Maxim, left, and Ralph Schellenbaum operate the machine.



EIGHTY-FOOT length of HERMES II steel tank dwarfs Tom Martin (9143), left foreground, and R. M. Jefferson (9141). Tom led design and development of the machine. Division 9141 will be responsible for its operation.

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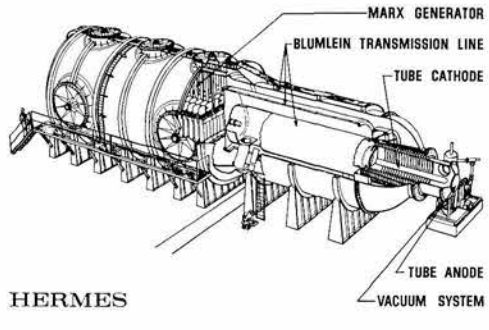
Giant Flash X-Ray Machine

Eidson Metal Products Corporation, an Albuquerque firm. The capacitors were purchased at considerable savings from the United Kingdom Atomic Energy Authority as surplus components from a controlled-fusion project.

Shielding for Hermes-II will be provided by stacking heavy concrete blocks into configurations to create an exposure room around the end of the generator. Complete assembly of the Hermes-II, including an x-ray tube, was accomplished last month. The generator will now undergo additional testing to measure its performance before being used in support of Sandia's radiation effects studies.

K. R. Prestwich, D. A. Butel, D. L. Johnson, R. S. Clark and A. J. Barber of 9143 and J. E. Harness of 9141 participated in the development of the generators for both Hermes-I and -II. J. E. Boers and D. Kelleher of 9143 are investigating the properties of high-current, electron beams in x-ray tubes.

Hermes-I and Hermes-II will be operated and applied to specific uses by the Reactor Applications Division 9141 under R. M. Jefferson.



HERMES

CUTAWAY DRAWING of HERMES II shows internal components. Circular hatches on sides and top of tank are for access. Small windows are located at center of these.

SANDIA LAB NEWS

SANDIA LABORATORIES
ALBUQUERQUE, NEW MEXICO
LIVERMORE, CALIFORNIA

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Editor: Thomas B. Heaphy

Staff: Cherry Lou Burns, Robert P. Gall, Donald E. Graham, Bill Laskar,

Public Information, Livermore, California
Rm. 138, Bldg. 912, Tel: 447-2387

William A. Jamieson, supervisor
Staff: Matthew J. Connors, Lorena Schneider

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Summer Tutoring Aid Needed by Youngsters

Would you like to help tutor school children in the evening? The Albuquerque Tutoring Council, which is directed by the Albuquerque Public Schools, is recruiting and placing volunteers who are willing to assist children in grades 3 through 7.

The majority of the tutoring is in the basic skills of education: reading and arithmetic. Although special educational skills are helpful, the basic requirements for a tutor are concern for children, reliability and patience. The volunters range in age from 12 to 83 years; and in schooling from junior high school level through PhD's.

During the school year, most tutoring is done in the schools during the day. But some of the work during the year—and most of it during the summer—is done in the evening at schools, community centers, churches, or the student's home.

Sandians who have participated in tutoring programs include Don Morrison (1713) and Fred Norwood (1721). Further information may be obtained from them or from Joseph S. Willis, community coordinator for the program, tel, 242-1056.

Local Artists Exhibit At Arts and Crafts Fair

"Crossroads of Three Cultures"—Spanish, Indian and contemporary—is the theme for the 1968 New Mexico Arts and Crafts Fair to be held Aug. 2-4 in Old Town Plaza.

As in previous years, the fair provides an opportunity for artists and craftsmen to display their works before a large cross-section of the public. Sandians who will be showing examples of their leisure-time interest in art are Dick Strome (3463-1) and his wife Elaine who will have both oils and watercolors in their double booth. In a nearby booth Gordon Snidow (3463-3) will have a large oil of a Western scene and numerous small paintings executed in oils and tempera. Gaye Romesberg (3413) will have both watercolor and oil paintings in her display.

Special events are scheduled for the three days of the fair, including strolling musicians and demonstrations by artists and craftsmen.

The Keynote exhibit this year will salute the Navaho Indian artists and craftsmen from 1868 to the present.

Last year more than 150,000 persons attended this popular fair. There is no admission charge.

Events Calendar

July 26—Indian dances at Taos and Santa Ana Pueblos.

July 26-28—Brendan Behan's "The Hostage." Corrales Adobe Theatre, tel. 898-2932.

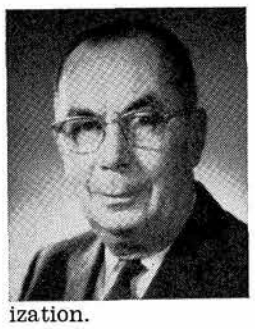
July 26 and 31—"Der Rosenkavalier"; July 27, "The Elixir of Love"; Aug. 2 and 8, "La Traviata"; Aug. 3, "The Magic Flute"; and Aug. 7 "The Bassarids" (American premiere). Santa Fe Opera.

July 27-28—Fiesta in Chimayo.

July 30-Aug. 10—"Spoon River Anthology." Santa Fe Theatre Co., Greer Garson Theatre.

Aug. 2-4—New Mexico Arts and Crafts Show, Albuquerque Old Town Plaza.

Retiring

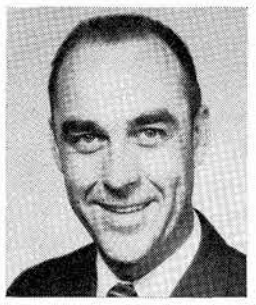


Courtland V. Rathbun of Administrative & Coordinating Section 4545-1 will retire July 31. Since joining Sandia in August 1954, he has either been associated with or has worked in the plant engineering organization.

Before moving to the southwest, Court was employed as a scheduler in a paper mill near his home in Massachusetts.

Court says his retirement plans are indefinite; however, he's hoping to play golf and later will be looking for some part-time work to keep occupied. He has friends and relatives living in Massachusetts where he plans to spend a couple of months this fall.

Supervisory Appointment

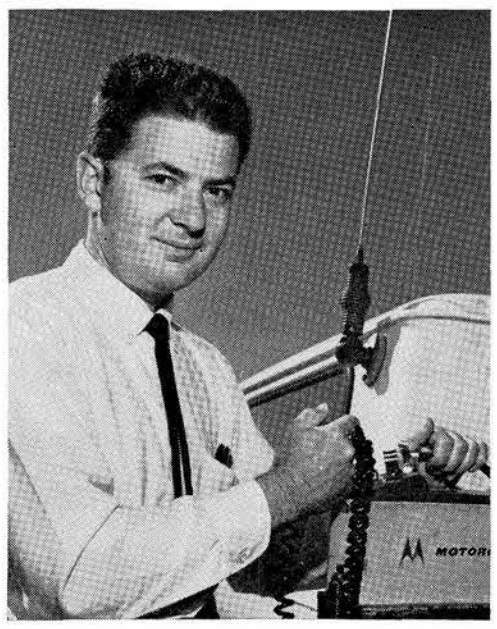


WILLIAM L. MARTIN to manager of newly created Security Operations Department 3520, effective Aug. 1.

Since 1965, Bill has been supervisor of Personnel Division II 3242. He was promoted to division supervisor in 1955 and has headed divisions in wage and salary and labor relations. He joined the company in 1951.

Bill attended Marshall University, Huntington, W. Va., earning a BS degree in 1950. He earned his MBA degree from the University of California, Los Angeles, in 1951 while working as a graduate teaching assistant. Bill will teach a labor/management relations course at UNM next year.

During World War II, Bill spent three years in the Army Air Corps. He was a navigator on B-17s operating out of England.



ROBERT B. FOSTER, JR. (7451)

—receives PICON Award for radio service—

Robert Foster Honored For Amateur Radio Public Service Work

Robert B. Foster, Jr. (7451), was honorded recently by the American Radio Relay League, a national organization of amateur radio operators, for his outstanding emergency communications work and public service contributions.

Bob was presented with the PICON award which derives from the wording in the preamble of the rules and regulations for amateur radio operators under the Federal Communications Commission. PICON stands for Public Interest, Convenience Or Necessity.

Bob was instrumental in establishing a radio relay station for the Sheriff's Department in the Manzano Mountains and in greatly increasing the effectiveness of its equipment.

Bob lives in the Manzanos on Highway 10 south of Interstate 40. He also installed, primarily at his own expense, a repeater station high in the Manzanos which extends the range of mobile radio stations in the Albuquerque area. For emergency communications, the repeater station now makes it possible for mobile radios in Albuquerque to reach other New Mexico cities.

Bob has also served on a number of committees formed to resolve frequency assignments and radio interference problems.

He has worked as a physicist at Sandia Laboratories since June 1957. Radio and radio equipment have been a hobby since he was in junior high school.

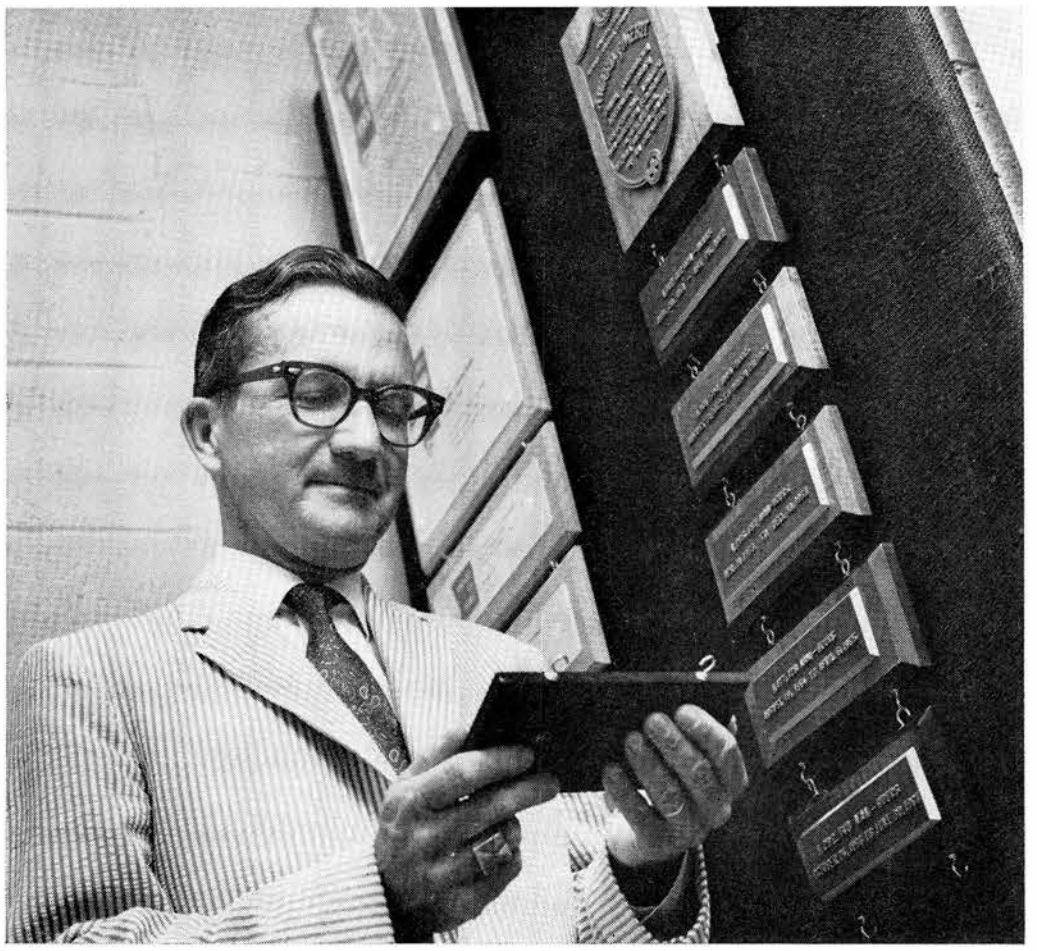
Authors

R. C. Wayne (5132), "Pressure Dependence of the Magnetic Transitions in Fe-Rh Alloys," June 10 issue, PHYSICAL REVIEW.

G. A. Samara (5132), "Pressure and Temperature Dependence of the Ferroelectric Properties of Deuterated Rochelle Salt," May issue, JOURNAL OF PHYSICS AND CHEMISTRY OF SOLIDS.

LIVERMORE NEWS

VOL. 20, NO. 15 SANDIA LAB NEWS JULY 26, 1968



SAFETY AWARD—T. B. Cook, Jr., vice president 8000, adds the latest AEC Award of Merit earned by Sandia Laboratories, Livermore employees to the safety award display in Bldg. 911. The award recognizes more than one and a quarter million injury-free man hours worked by SCLL employees during the period July 3, 1967, to March 4, 1968. In the past, Livermore has received six Awards of Merit and an Award of Honor (over 3,000,000 injury-free man hours worked) from the AEC.

Take Note

Sandia Laboratories Livermore was co-host with Lawrence Radiation Laboratory to the annual meeting of the Facilities Managers Group of the AEC complex, June 25-27. Planning lectures were presented and group discussions held on mutual facilities problems. The meeting also included tours at both LRL sites.

Over 17 AEC installations were represented at this year's meeting. Representatives attending from Sandia Livermore were C. H. DeSelm, director of Staff Services 8200; W. A. Little, manager of Engineering Services Department 8250; J. H. Mafit, supervisor of Plant Engineering Planning Division 8251; and K. E. Finders, supervisor, Plant Engineering Design Division 8254. Those attending from Sandia Albuquerque were R. E. Hopper, director of Plant Engineering and Maintenance 4500; H. H. Pastorius, manager of Plant Engineering Department 4540; and R. W. Hunnicutt, supervisor, Field and Plant Operations Engineering Division 4544.

* * *

Ernest E. Alford, supervisor of Material Services Division 8245, has been awarded a Bachelor of Science degree in industrial technology from San Jose State College. Part of his course work was completed under Sandia's Educational Aids Program.

Ernie joined Sandia at Albuquerque in 1949 and worked as an electronics technician in the fabrication shops and project engineering groups. In 1956 he transferred to Livermore where he was in full-scale testing and telemetry systems work before his appointment to section supervisor in the Model Shop Division in 1959 and to his present position in 1965.

* * *

As a community service Chabot College is presenting a series of planetarium programs on Thursday evenings during the college's summer session. The programs, open free to the public, are scheduled for 7:15 and 8:15 p.m. as follows: Aug. 1, Ninety Degrees North; and Aug. 8, The Life of a Star. Children under 12 must be accompanied by an adult.

Currently displayed on the SCLL's Technical Library bulletin board is a series of 47 educational booklets on "Understanding the Atom," issued by the AEC's Division of Technical Information, Oak Ridge, Tenn. A limited number of the booklets are available without charge.

* * *

Hans Birnbaum (8171) shot a net low score of 64 to win the first place trophy in the Sandia Employee Golf Club tournament at the Sunol Valley Golf and Country Club on July 6.

The tourney was played on a straight handicap basis with participants divided into two flights. Bernie Kraemmer (8121) was the winner of the first flight (handicap of 22 or less) with a net score of 65, and Mike Gregory (8126) won the second flight (handicap 23-36) with a net score of 66.

John Barnhouse (8226) was closest to the pin in the hole-in-one contest.

Sympathy

To Tom Fukunaga (8161) for the death of his wife in Berkeley, July 1.

To Marcy Noble (8232-2) for the death of her mother in Island Park, N. Y., July 9.

To Bill Whitney (9125-1) for the death of his son in Viet Nam, July 3.

To Ken Urabe (8252-1) for the death of his father in Oakland, June 28.

Contract Awarded for Area 8 Test Building

The AEC has awarded a contract for the construction of a one-story 2000-square-foot building in Area 8 at Sandia Laboratories, Livermore. It will be used by Environmental Test Division 8125 to determine the effects of impulsive loads on structures and their components.

Project Engineer Jim Harter (8251) expects construction of the steel and concrete block building to start this week and be completed in November. Project Engineer Henry Nakatani (8254) expects test equipment installation to be completed by March 1969.

"Ocean Engineering" Topic for August Colloquium

The Livermore Laboratories Colloquium of Aug. 8 will present Howard R. Talkington, project manager for Deep Ocean Engineering at the U. S. Naval Undersea Warfare Center.

A native Californian, Mr. Talkington received his BS in civil engineering from the University of Southern California in 1951. On graduation, he joined the Naval Undersea Warfare Center (NUWC), specializing in anti-submarine warfare.

Presently Mr. Talkington heads the Ocean Systems Division of the Ocean Technology Department. He is the project manager for the NUWG SUBROC Program, responsible for technical problems and technical support at the Center's San Clemente Island Test Range. As project manager for deep-submergence systems, Mr. Talkington also handles the NUWC responsibilities in the Sea Lab Program.

The NUWC effort in recovering the hydrogen bomb off Palomares, Spain, was headed by Mr. Talkington.

Mr. Talkington is a member of the U. S. Naval Institute, Marine Techonology Society and American Society of Civil Engineers.

Further information concerning the colloquium will be posted on the bulletin boards. Tickets are required for admission. Donald W. Putz (8153) is host for the colloquium.

National Alliance for Businessmen

E. W. Baldwin Represents SCLL In Hard-Core Unemployed Program

Several months ago, E. W. Baldwin, manager of Administrative Services Department 8210, became Sandia Laboratories representative with the National Alliance of Businessmen (NAB), a program established to meet the problem of the hard-core unemployed.

He is assisting with the Oakland Metropolitan Area effort for approximately six months.

"I am responsible for contacting 12 companies in the East Bay Area to explain the program and its challenge to business," says Ed. "But my overall effort is aimed at getting these companies to create as many jobs as possible for the hard-core unemployed."

The NAB received its charter from President Johnson's Manpower Message to Congress on Jan. 23, 1968. In his message, the President pointed out that "The question for our day is this: in an economy capable of sustaining high employment, how can we assure every American who is willing to work the right to earn a living?" He called on American business to apply its talents to the critical national problem of finding jobs for the hard-core unemployed.

Initially, the NAB is directing its effort to the nation's 50 largest metropolitan areas. In each of the 50 cities, the NAB has a team, headed by a metropolitan chairman, made up of businessmen from various companies and with a representative from the Department of Labor.

In each of the cities, the NAB contacts companies directly, or through existing local organizations, to ask them to provide jobs for the disadvantaged; works with local public and private organizations to identify and recruit disadvantaged persons to fill these jobs; and expedites arrangements for companies to receive Government funds to offset extraordinary costs of training programs.

Headed by Henry Ford II of the Ford Motor Company, the task of the NAB is to encourage private companies to put 100,000 men and women on the job by June 1969, and 500,000 by June 1971. In addition, the NAB has been working to find productive summer jobs for 200,000 needy youths.

In the East Bay Area, the quota for the first year was established at 2300 basic jobs and 3000 summer jobs for youth. Reports to date indicate that pledges of 2462 basic jobs and 2850 youth summer jobs have been received. "The program appears to be progressing well," Ed comments.



E. W. BALDWIN (8210) leaves Administration Bldg. 911 at Sandia Laboratories, Livermore on his way to contact an East Bay company for the National Alliance of Businessmen. The goal of the NAB program is to find jobs for 100,000 hard-core unemployed by mid-1969.

Some of the present hard-core unemployed can be assimilated in industry simply by appropriately changing unnecessarily high entry requirements for jobs. Many others, however, require extra effort in recruiting, training, and counseling, which adds additional costs above the normal for an industrial training program.

Ed notes, however, that providing training and jobs for the hard-core unemployed will not of itself end poverty in any area. "Employment is only part of the answer—but, it is an indispensable part, one that private business must try, with new determination, to provide."

Ed says that, generally, his experience so far has been one of success, although at times there have been some frustrations. "With one company, for instance, after five contacts over a period of weeks, I felt fortunate when I was able to get a pledge for five basic jobs and eight summer jobs."

Ed has been with Sandia since March 1949 when he joined Sandia Laboratories, Albuquerque as manager of the Accounting Department. In September 1954 he took over the Payroll and Vouchering Department, and in November 1956 transferred to Sandia Laboratories, Livermore to head the Administrative Services Department.

Take a Memo, Please

Be aware of such summer dangers as food poisoning and excessive sun.



Mona Krehwisch (8242-1)

Congratulations

Mr. and Mrs. Bob Anderson (8252) a daughter, Dena Lynn, June 24.

Mr. and Mrs. Ron Hagen (8182) a daughter, Carol Annette, June 16.

Mr. and Mrs. Steve Cvitovich (8254) a son, Stephen Thomas III, July 8.

Mr. and Mrs. Ray Smith (8333) a daughter, Erin Renee, June 1.

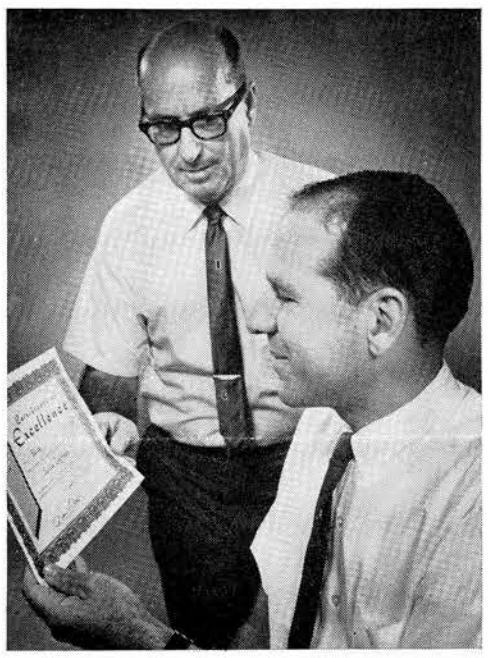
John Farnback (8333) and Constance Braswell married in Albuquerque, July 4.

Hank Witek (8182) and Mary Frances Kulik married in Chicago, June 29.



THE PROMOTION of Edward B. Giller, Assistant General Manager for Military Application, AEC, to Major General, USAF was announced recently. Admiring his "two-star" cake are (l to r) General Giller; J. L. McCraw, Acting Manager, AEC Albuquerque Operations Office, and President Hornbeck.

Take Note



CERTIFICATE OF EXCELLENCE was awarded Sandia Laboratories' bowling program recently by the National Industrial Recreation Association. C. B. O'Keefe, supervisor of Division 3126 which administers company recreation programs, presents the certificate to Bob James (3134), immediate past president of the Sandia Employees Bowling Association.



TWO SURPRISED PEOPLE were Eleanor Vavro and Jack R. Spence, both of Traffic Division 4363, when they were honored by Albuquerque members of the American Business Women's Association. Eleanor was voted "Woman of the Year" and Jack was named "Boss of the Year."

Charles W. Campbell, vice president 4000, was one of 10 prominent Albuquerque Catholics to receive the Order of the Grand Cross of the Knights of Jerusalem during a special investiture ceremony July 14.

The knighthood was bestowed by His Beatitude Maximos Hakim, patriarch of the Melchite Rite of the Catholic Church, whose position in the Church is surpassed only by that of the Pope.

* * *

William G. Funk, manager of Employment Department 3250, has been named temporary chairman of a proposed advisory group to the new Concentrated Employment Program (CEP).

The advisory group has been requested by the Albuquerque Chamber of Commerce to review the training program proposed by CEP to train 1000 "hard core" jobless in the city. The group will also ask CEP to report on the job opportunities open for these newly-trained persons.

CEP is funded by $2.25 million in federal monies.

* * *

Sandia Day School Nursery will hold registration Aug. 5 and 6 for children of kindergarten and pre-kindergarten age planning to attend the school term beginning Sept. 3.

Children of military parents will be registered the first day; civilians will register their children on Aug. 6. The registration fee is $5 and monthly tuition is $19.

New Spectrometry Book Has Chapters by Sandians

Recently-published MASS SPECTROMETRY IN INORGANIC CHEMISTRY includes chapters written by R. T. Meyer (5243) and C. H. Williams (5424).

The book is part of the Advances in Chemistry series published by the American Chemical Society to provide an outlet for symposia and collections of data in special areas of topical interest.

The chapter by Mr. Meyer and L. L. Ames of New Mexico State University's Chemistry Department discusses "Application of Time Resolved Mass Spectrometry to Problems in High-Temperature Chemistry."

The chapter by Mr. Williams was written while he was with Rice University and co-authored by others at that school. It is entitled, "Appearance Potentials, and Heats of Formation for Perfluorosilanes and Perfluoroborosilanes."

Introduction of the book describes the mass spectrometer as a basic tool for chemical manipulations, "no longer just an analytical instrument." It is further depicted as a conventional monitor available at any stage in a research problem to help establish what is going on in a chemical process, both quantitatively and qualitatively.

Pursues Art of Fly-Tying

Flies in Water, Fish in Creel Are Goals of Sam McAlees' Skills

Sam McAlees (9513) describes his hobby as fishing, but it far exceeds dropping a baited hook into a stream. Within a four-year span, he has completed a community college course on fishing, acquired and read 28 voluminous books on fishing and artificial lures, conducted classes on fly-tying for co-workers, and has made over 800 fishing flies, including wet flies, dry flies, streamers, bucktails and nymphs. In addition, he can identify hundreds of different types of lures, some even with the name of the individual maker and the origin.

Looking at a coachman wet fly, for example, Sam comments that the original lure was designed by Tom Bosworth, coachman for Kings George IV and William IV, more than a century ago. In 1878, a New York flymaker wrapped some red silk thread around the midsection of the coachman fly and added a barred woodduck feather in response to a request from a customer for a stronger coachman fly. This modification later became known as the royal coachman because it was "so finely dressed."

Sam first became casually interested in fishing about seven years ago when he bought his two sons, then four and seven years old, inexpensive fishing rods. An ardent golfer at the time, he soon had to forfeit his game to take his sons fishing. Then the fishing trips gradually expanded into family outings.

Two years later he enrolled in a UNM Community College course on cold and warm water fishing in New Mexico, which included the habits of fish and the art of spin and fly fishing. After completing the course, he continued building a library on fishing and centered his interest on fly fishing. He has been making such artifical fishing lures as streamers, wet and dry flies, nymphs and bucktails since then.

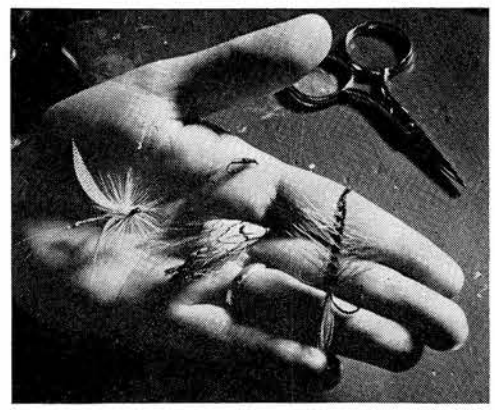
When wet, the streamers resemble minnows moving with the stream's current beneath the surface. Flies are either attractors, flashy to curious fish, or food simulators, resembling a variety of insects. Dry type flies, made with fluffy fur or feathers which entrap air to keep them afloat, are cast upstream and then permitted to float naturally on the water's surface with the current. Wet flies, made of sparse fur or feathers, float beneath the surface and are used in the same manner as the dry variety. Bucktails are about the same as streamers, but are made from the pelts of various animals.

In making flies, Sam ties all the materials on the shank of the hook near the bend and then works the material forward to form the simulated insect's tail, body, ribbing, thorax, wings or covert, antenna and legs. He uses thread .002 to .003 of an inch in diameter because it doesn't build up. The thread is wrapped around the fly in a spiral fashion. After each portion of the fly's body is completed, the thread is secured with a drop of lacquer to avoid the bulkiness of conventional knots. The fly's head is completed with a whip finish.

Ostrich, peacock, golden pheasant, turkey and many varieties of ducks and chicken feathers are among the numerous materials he uses in making the artistic lures. Other material includes polar bear fur, muskrat fur, gray wool, chenille, tinsel and a variety of threads.



WOOLY WORM FLY nears completion as Sam McAlees (9513) wraps a feather with flared barbules around shank of hook.



REPRESENTATIVE FLIES from Sam McAlee's collection.

"There may be a great many variations for any particular fly," Sam says. "The name Gray Hackle, for example, is not very descriptive. The design may be modified slightly, different materials may be used and the colors may vary." One book in his collection contains patterns for over 5900 wet and dry flies alone.

Another reference source is a collection of about 80 flies gathered from throughout this country and Europe. Included are classical dry flies from the eastern portion of the country, a parachute hackle made by a flymaker in Mesquite, Texas, about 20 nymphs marketed by a commercial firm, and an array of colorful Irish, Scottish and British flies.

Sam pursues the fly-tying hobby throughout the year, increasing production during the fishing season to provide each member of the family with a good assortment. Even his four-year-old daughter has lent a hand by making a wooly worm, with some assistance from Sam, for an upcoming outing planned by the five McAlees.

Sam tests some of his fly designs in a bathtub filled with water, but the real judges of his ability are the fish.

New Mexico Mountain Club Says

Play It Cool--Take a Hike

When it's hot in the city, think of mountain glades lush with grass and high lakes rimmed with ice and snow.

This is the Pecos Wilderness in northern New Mexico.

In late June, Irving Auerbach (9326), Jack Hickman (1651), and Russell Peterson, 11-year-old son of D. P. Peterson (1711), were among seven members of the New Mexico Mountain Club to hike the 50 miles from Santa Fe ski basin to Cowles during a week-long outing. The trip leader was Norm Bullard, a retired Army officer, now in New Zealand on a mountain/glacier climb with Sir Edmund Hillary.

"This trip was different from previous ones because of the large variety of flowers and animals we saw," Irv said. The group identified 40 species of wild flowers and 11 forms of wildlife. The entire outing was at elevations above 10,000 feet.

Deer were especially plentiful, but the hikers also saw at close range mountain sheep, elk, turkey, foxes, marmots, and more common small animals.

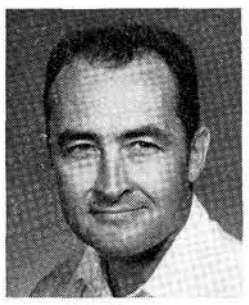
"Hamilton Mesa was covered with wild iris. It was impossible to step one foot off the trail without trampling them," Irv said. At Johnson Lake, the hikers tossed their sleeping bags on marsh marigolds—they were so profuse there was no way to avoid them.

All streams were flowing and at Johnson Lake large-size trout could be observed sunning themselves in shallow water along the edge. There was still much evidence of last winter's heavy snowfall. At one point, the ground was completely covered by crusted snow and the trail through the woods could only be located by tree blazes.

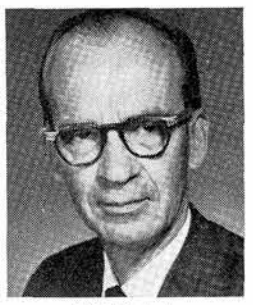
So, if you have the "drabs," try a mountain hike of several days duration. Usually if you are more than one day's walk from the highway, you can be sure of having the countryside to yourself. And do leave your campsite as clean as it was when you arrived.

Service Awards

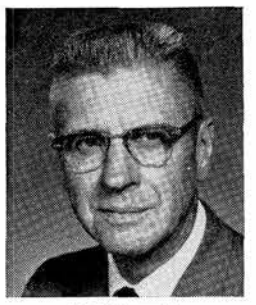
20 Years



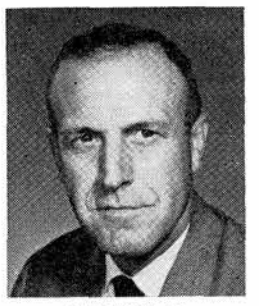
R. L. Armstrong
1622



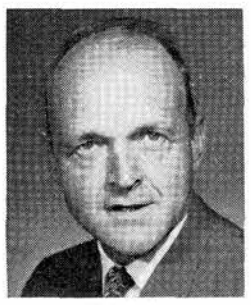
G. R. Bachand
7271



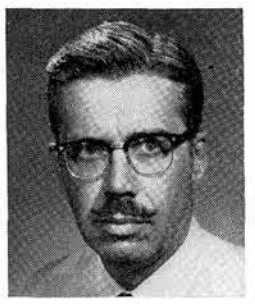
E. B. Bergquist
4374



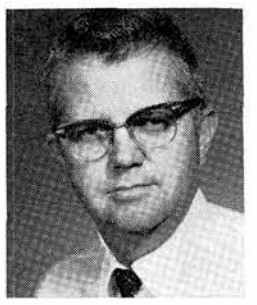
W. F. Boyes, Jr.
3464



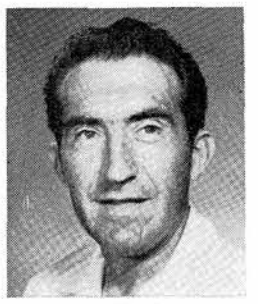
W. J. Cocke
1521



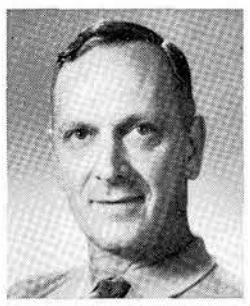
J. R. Craig
2342



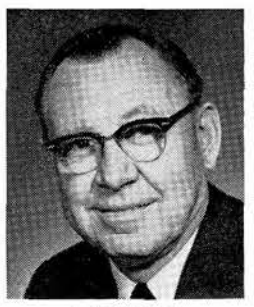
C. M. Grassham
7321



Abel Lovato
4614



J. A. Maxim
7217



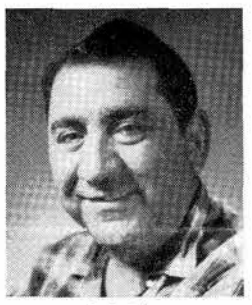
J. W. Pinkerton
4213



Mavis Randle
1810



J. B. Shelton
7424



P. A. Silva
4573

15 Years



P. F. Bahr
2454



C. H. Stockley
8124

Welcome . . . Newcomers

June 24 - July 19

Albuquerque
Russell E. Abbink 9233
Richard A. Alderette 4574
**James R. Anderson 5151
Margie M. Beck 3126
William E. Bouma 1514
Ronald A. Burghard 2152
Jose G. Castillo 4574
Sandra K. Floyd 4372
Karen J. Fluckey 3126
Barbara C. Garcia 3421
Manuel A. Gonzales 3415
Ronald G. Hamilton 3313
Jacqueline J. Henry 9412
Peter C. Kaestner 9323
Jeffrey A. Kahn 5113
Darlene H. Keich 3126
**Charles KerkesLager 3251
K. Joe Kinnie 2212
Robert A. Langley 5233
***Sidney C. Larson 1420
Michael T. Lyon 4111
Craig J. Melville 5232
Susan D. Noel 4135
Dollie Jo Oldham 4152
Henry Pacheco 4574
Clifford L. Pedroncelli 3415
Helen H. Qualls 4362
William T. Ristau 1113
*Gloria B. Sais 3126
*Francis L. Santillanes 3126
Selma J. Savitt 4135
Carl A. Smith 4574
Carol L. Trask 3126
James A. VanDenAvyle 9333
William J. Vigil 7217
Mary V. Vivian 3126
E. Roberta Voelker 3126

California
Marc D. Kravetz, Los Angeles 4382
Ronald B. Pope, Campbell 1000

Colorado
Edward J. Elich, Jr., Pueblo 7611
***Robert N. Rogers, Boulder 5151
Allen J. Wilshusen, Boulder 7612

Iowa
Larry M. Lauger, Durant 9000

Kansas
Jesse O. Betlack, Lawrence 9425

Massachusetts
*Billy Joe Thorne, Northampton 5162

Minnesota
James A. Borders, White Bear Lake 5111

New Jersey
James A. Kaiser, Basking Ridge 3243

New Mexico
Charles E. Gray, Las Cruces 3311

New York
Lloyd A. Davis, New York 2000

Oklahoma
Larry E. Jennings, Bethany 7612
Dannie L. Ortega, Stillwater 4336

Pennsylvania
Jack G. Bartberger, Pittsburgh 7611
Richard E. Blose, Erie 7613
Vincent J. Dandini, Berwick 7613
James S. Lestyk, Butler 7611
Kenneth W. Shirley, Export 7612
Daniel J. Smolensk, Apollo 7611
Karl E. Wiegandt, Allentown 7612
Thomas B. Zmiejko, Freeland 7612

* Rehired, ** Temporary, *** Temporary Rehire

10 Years

July 26 - Aug. 8

C. K. Hoffman 2561, L. H. Sanders 3312. Fernando Gurule 4574, R. T. Dillon 1830, R. G. Mosteller 9132, J. W. Smith 3251, W. T. Zagar 7612. H. L. Anderson 2355.

J. L. Pecos 4135, J. R. Martin 8125, G. L. Knauss 2611, T. C. Bryant, Jr. 2613, A. A. Riedel 2614, H. A. Lacey 2622, D. R. Stringfellow 4614, A. B. Harrison 8222, W. J. Villanueva 4615, and H. L. Brumfield 8312.

Deaths

Frank C. Ewing, a presentation artist in Technical Report Illustrations and Presentation Art Section 3163-2, died July 14 after an illness. He was 54.

He had worked at Sandia since June 1946.

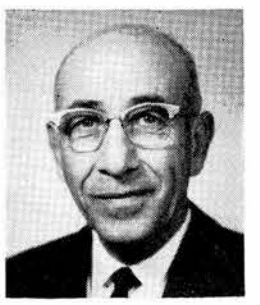
Survivors include his widow, a son and a daughter.

* * *

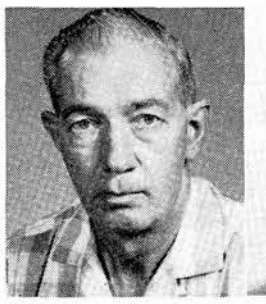
Robert K. Crawford, a mechanical inspector in Inspection Calibration Division 4213, died suddenly July 19. He was 48.

He had worked in Sandia's Development Shops organization since joining the company in July 1951.

Survivors include his widow and two sons.



F. C. Ewing



R. K. Crawford



E. E. Hipsher

E. Eugene Hipsher, an engineering information analyst in Engineering Data Analysis Division 7633, died July 20 after a long illness. He was 47.

He had worked at Sandia since February 1960.

Survivors include his widow, two daughters and two grandchildren.

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CLASSIFIED ADVERTISING

Deadline: Friday noon prior to week of publication unless changed by holiday.

A maximum of 125 ads will be accepted for each issue.

RULES

1. **Limit: 20 words**
2. **One ad per issue per person**
3. **Must be submitted in writing**
4. **Use home telephone numbers**
5. **For Sandia Corporation and AEC employees only**
6. **No commercial ads, please**
7. **Include name and organization**
8. **Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.**

FOR SALE

CARS & TRUCKS

'26 MODEL T Ford, partially restored, make offer. Shaw, 344-3567 or 298-5163.

'60 CHEVROLET, auto., V-8, $395. Montoya, Bernalillo 1-867-2604.

'66 RAMBLER Ambassador Dpl w/custom upholstery, PS, PB, Factory AC. Flower, 298-0632 after 5:30.

'61 FORD convertible sunliner, AT, new red paint, $325. Duvall, 299-8744.

'54 NASH Metro conv., new top, $150 or best offer. Ross, 265-4990.

'59 MERCURY, 4-dr. HT sedan, 48,000 miles, PS, PB, AC, new paint, tires, brakes, $500. Zachmann, 299-6871.

'60 OPEL station wagon, $125. Hiller, 296-5059.

'64 CORVAIR Monza, 4 on the floor, $850. Bryant, 242-1348 after 5:30.

'65 MUSTANG conv. V-8, 3-spd., radio, AC, 4-ply wsw tires, $1425. Gorin, 298-6160 evenings.

'59 VOLKSWAGEN w/rebuilt engine, fine for student, $375. Freedman, 298-2177 after 5:30.

'57 CHRYSLER 300-C, convert., PS, PB, PW, AT, radio, gasoline heater, nearly new premium tires, some extra parts, make offer. Skelton, 268-7759.

'58 OLDSMOBILE Super 88, motor needs work. Marceau, 255-2343.

'67 VOLKSWAGEN, 113 sedan, 2 new Remington tires, 2 nearly new Continental tires, navy blue. Moore, 256-0529 after 5:15.

ONE OWNER '55 BUICK 2-dr. hardtop, auto., radio, 3-tone, $295. Bassett, 898-1840.

'55 PONTIAC Chieftain, AT, PS, PB, $75; 1960 Studebaker Lark, V-8, standard shift, $250. Roeschke, 282-3234.

'51 JEEP station wagon, overdrive, radio, 2-wheel drive, engine has cracked block, 1968 license, $100. Ernst, 344-8694.

'65 VOLKSWAGEN sedan 113, R&H, 21,000 miles; 1963 Rambler classic 2-dr. Will consider trades. Dollahon, 299-8107.

'61 RAMBLER six, AT, $350. Ortega, 243-2687.

'65 VOLKSWAGEN, 24,000 miles, radial tires. Schafer, 299-4634 after 5.

'60 T-BIRD, PB, PW, make offer. Jeys, 299-4197.

'63 ENGLISH Ford, 4-pass., station wagon, reliable transportation. Cover, 268-0921.

REAL ESTATE

SW VALLEY, 2/3 acre between Arenal and Blake, 3 blocks east of Foothill. Benton, 877-2473.

MOSSMAN 3-bdr., den, 1¾ baths, NE Heights near park, library and schools. Norris, 299-4676.

3-BDR. HOUSE, 2 baths, large utility room, den w/fireplace, double garage, irrigation well, clean, quiet area, 3000 sq. ft., $23,250 Morrison, 855-6244.

3-BDR., 1¾ baths, new carpet every room, large utility room, lawn, sprinklers, new roof, garage, $13,000. Kelly, 298-1334.

1¼ ACRES on Edith Blvd. Good for trailer space, $3000. Padilla, 898-0379 after 5:30.

2-BDR. HOFFMAN brick, freshly painted, Aztec elementary, Madison jr. high, Sandia high, walled backyard, fruit trees, $9750. Mitchell, 299-3487.

HOUSE AND lot plus 2 acres vacant land, Sedillo Vista about 20 miles east of Albuquerque. Jaramillo, 877-9104.

ADOBE in Tijeras, 2500 ft., 4-bdr., 2 baths, 4 fireplaces, perimeter heat, electric kitchen, private, 23 acres available. Schuetz, 282-3486.

LOT, 75 ft. frontage, Los Altos area, w/pavement, sidewalk, walls, and utilities, 1021 Glorietta NE, $3850. Cordova, 299-1652.

3-BDR., SE heights, brick, 1¾ baths, den/bar, low down payment. Pitts, 256-7890.

TWO 3-ACRE lots, Ranchos de Placitas, view, level, water and electricity, $2000 per acre. Thacker, 1-867-2427.

COOL ADOBE in Sandias, large living area, built-ins, fireplace, 3-bdr., 1¾ baths, carport, plus guesthouse 1 acre, terms flexible. McMillin, 282-3395 or 282-3226.

2-BDR., garage, walled backyard, new roof, new AC, sprinklers, hardwood floors, 8110 Roma NE. Doppelhammer, 265-1303.

MOUNTAIN VIEW, separate play area or garden, Collet Park, 3-bdr., den, sprinklers, large covered patio, double garage, 4¾%. Spray, 299-0412.

2.3 ACRES irrigated in alfalfa, El Cerro loop area, south of Valencia, $1800 per acre, financing available. Snidow, 298-6163.

MISCELLANEOUS

CEMENT MIXER, $80; valve reface machine, $40. White, 1705 Hoffman NE, 298-2838.

TWIN FOAM mattress and springs set, $50; beige living room sectional, $40; 5 x 7' blue oval braided rug, $12.50. Everett, 636-2544.

RIDING HORSE, good with children, will trade for calves or $100. Padilla, 898-0379 after 5:30.

McGREGOR-FRANK STRANAHAN golf clubs, 3 woods, 7 irons, putter, bag and cart. Best offer. Chen, 243-5472 evenings.

15' BOAT w/tilt trailer, 40hp electric start motor and accessories, $850 cash or will consider trade. Ryan, 299-3318 after 5:30.

12' FIBERGLASS autotopper boat, boat rack and motor. Roussel, 898-0721 after 6.

KEROSENE furnace, 55,000 BTU, $50. Arnold, 898-3624.

WHITE TONNEAU cover for Triumph TR-4, $15; boy's 24" Schwin bike, $20. Hunnicutt, 299-2932.

HALF CARAT diamond in Masonic ring, appraised as unusually good cut. Gary, 256-7325.

PING-PONG table, solid top, folding legs, new net, $25 or will trade. Stuart, 299-9190.

TWO 15-WATT Lafayette hi-fi amplifiers for stereo, $35 for both. Cashion, 243-3639.

LAWN MOWER, Craftsman 18" reel type, Briggs & Stratton 4-cycle engine. Leyba, 344-6928.

WIG, full length, hand sewn, real hair, chestnut color, $190 value for $130 with case. Adcnt, 298-7700.

'67 SHELBY, 427 cu. in. engine. Reif, 265-7264.

EARLY AMERICAN style 4-light wagon wheel chandelier, 4 matching single ceiling lights, copper trim and shades, $75 for set. Leisher, 282-5258.

GROVE'S Prestige Special overdraw take-down man's target bow with case and 1 doz. aluminum arrows, cost $190 new, best offer. Grant, 255-0576 after 5:30.

ROTARY LAWN MOWER, gasoline-powered, newly tuned and sharpened, $20. Busby, 299-6450.

ELECTRIC ice-cream freezer, never used, in original carton, $15. Guttmann, 299-7031.

CUSTOM BUILT aluminum camper shell, square tubular steel frame, fits long wide bed. Brooks, 345-0495.

WASHER-DRYER set, bronze, Sears, $275; DR mahogany hutch, buffet, 5 chairs, table, $200; kitchen set, $100. Roeder, 265-4963.

CAR COOLER, $20; one room cooler, $20. Will consider trade for VOM, VTVM. Sifre, 344-4680.

MAPLE TWIN beds, springs and mattresses, $25 both; Leedy-Ludwig 15 lb. glockenspiel, completely equipped, $100. Butel, 298-2709 after 5:30.

PORTABLE TV, 1967 18" Zenith, $70. Glenn, 268-1853 after 5.

TRAIN BOARD w/HO gauge track, complete with freight train, village setting, remote switches. Pardee, 255-1998.

GARAGE SALE including electric range, power mower, electric fan, throw rugs, wrought iron pieces, etc. 221 Tulane SE. Joseph, 268-5414.

MAPLE DINETTE set, 1 leaf, 4 chairs, $20; rotary gasoline mower, $12; 2 small braided rugs, blue, $4. Ready, 255-8238 after 5.

AUSTIN HEALEY MKII "3000," 6 cyl., 4-speed trans. plus OD, 1960 model. See, drive, and make offer. Browning, 299-6384.

SHOTGUN, Remington 12 gauge auto., $80; pistol, 44-40 Colt six, "Bisley," $55; Japanese military transit and tripod, $150. Downing, 299-6945.

TURNTABLE, Garrard, 3-speed manual w/Empire diamond stereo cartridge, was $30, now $25. Caskey, 296-2237.

GIRL'S BIKE, 26" thornproof tubes, $20. Morgan, 299-2850.

'64 HONDA, 90cc (1mm) oversize piston, $185; slot car track, cost $35 sell for $15. Barry, 242-7545.

GIRL'S 26" bike; 2 pr. lined, pleated short drapes, pink and white check. Bowen, 255-8195.

GIRL'S 26" bike, $12. Townsend, 265-7463.

CAMPER JACK HD, $45; flush toilet, Corlon No. 1064, $60; Coleman catalytic heater, 5000 BTU, $18; contractor's wheelbarrow, $8. Aaron, 282-3803.

'62 AMERICANA People's encyclopedia, never used, 19 vol., 3 yearbooks and atlas, $200 or best offer. Tarbell, 256-1322.

FRENCH HORN, student grade, $100. Boyes, 282-3602.

'62 MOTORCYCLE, Harley Sprint, w/2 extra sprockets, $250. Sisneros, 344-7143.

POLAROID CAMERA No. 220 w/flash and case, 3 months old, $45. Newman, 299-2729 after 6.

LAWN SWEEPER, 28" wide, hand push type, $15. Hale, 298-1545.

TENT 9x18', Sears, two years old, used on two trips, $60. White, 298-3630.

TRAVEL TRAILER, 12' Road Runner, one year old, $875. Maes, 298-2294.

MAYTAG WRINGER washer w/pump, $85; Tappan gas range, glass oven door, deluxe model, $90. Browne, 344-6343.

STEREO COMPONENTS, complete system Harman Kardon amplifier, 30w Rek-o-kut turntable, Pickering cartridge, two Wharfedale W-60 speaker systems, $170. Stoker, 299-7221.

DANISH WALNUT bench; hi-fi cabinet, Phil. mahogany, modern; Karlson speaker enclosure, unfinished; hi-fi cabinet, ranch oak; cartop carrier w/canvas. Stevens, 299-6086.

180 AMP arc welder, 220 vac, accessories, $100; 40 watt stereo amplifier, tube type w/case, $70; stereo cabinets, $80. Longfellow, 299-7062.

REFRIGERATOR, Coldspot, white, 12.5 cu. ft. full width freezing compartment, purchased in 1950, $35. Rynders, 299-3894.

TRAVEL TRAILER, 17', fully self-contained, furnace, pressure system, gas-electric refrigerator, sleeps 6. Randall, 344-8195.

HALF-ARAB buckskin mare, 7, gentle but spirited. Free pasture and stable if desired. Also used saddle, bridle. Martin, 282-3794.

WHITE CHIFFAROBE; studio couch; maple love seat. Corll, 255-5683.

AIR CONDITIONER, 4000 cfm, window type, single speed fan, complete w/pump. Simpson, 298-4749.

SINGER "500" sewing machine, slant needle, zig-zag, early American cabinet, attachments, disks included, $295. Todd, 268-4486.

1960 RANCHERO, 2-bdr., 1½ bath, new furnace, water heater, and range. Ideal for mountain use. Available Aug. 1 at bargain. Boyd, 282-3331.

TRAVEL TRAILER, 1962, 16' Terry, sleeps 5, electric brakes and controller. Hostetler, 898-3785.

CLARINET, B-flat, Professional Grenadilla, wood, $75 or best offer. Summer, 299-1912.

3-PC SECTIONAL living room couch; 46 yards of drapes, floor to ceiling, 8' x 23'. Zucuskie, 268-3105.

ACRILON PLUSHPILE blue carpet (13 x 17'), $4 yard; double bed w/walnut headboard, $65; modern stuffed chairs, 2 for $15; car AC parts. Chandler, 296-3323.

FACTORY BUILT camping trailer chassis for 15' trailer, 3 steel channel frame, hydraulic brakes w/safety release, $150. Shock. 877-3728.

MOTORCYCLE, '67 Honda Scrambler, 305cc, low mileage, $525. Kefauver, 296-3547.

AURORA HO race car set, 48' of track, 3 cars, 2 transformers, cost $60, sell for $35. Sims, 255-6967.

EPIPHONE GUITAR, solid body, dual pick up, vibrado, w/case, $89. Tholburn, 842-9694 or 268-8103.

DINETTE SET, table, 6 chairs, $30; child's 6' plastic pool, $3. Allen, 256-3234.

SWIMMING POOL, 10' diameter, 20" deep w/ steel sides and vinyl bottom, plastic cover and dip net, $12.50. Bartlett, 299-4861.

LUGGAGE CARRIER, station wagon size, used once, $17. Zanetti, 344-0166.

SLEEPING BAGS, two, both for $30. Espinosa, 268-5457 after 5.

'67 FORD F-250 camper, special, 10 ply tires, 11' Aspen camper, used twice. Johnson, 282-3673.

WANTED

STAUFFER COUCH. Sylvester, 255-4388.

RIDE FROM Eubank and Indian School NE to Sandia. Pay my share of expenses. Cobb, 268-3151.

CEMENT MIXER, condition not too important. Sayers, 898-3851 after 6.

BOY'S BIKE, 24" or 20". Tidmore, 298-9164.

SMALL FREEZER, less than 7 cu. ft. Duvall, 299-8744.

CARPOOL from vicinity Eubank, Montgomery, Morris, Commanche. Busby, 3913 Inca NE, 299-6450.

CHAIN SAW engine or 3-5 hp reel type lawnmower engine. Conrad, 299-5316.

HOME FOR three well-mannered housebroken kittens. Johnson, 255-8851.

PURCHASE OR rent set of camper jacks. Would consider joint ownership with several persons. White, 298-3630.

LATE MODEL ½ ton pickup in good condition, 3-speed preferred, have '63 Rambler, can trade. Dollahon, 299-8107.

'64 or later model station wagon equipped with AT, PS, and air. Have '63, F-85 4-dr. sedan with AT for trade. Chandler, 296-3323.

FOR RENT

ROOM, private entrance, bath and lawn, Hoffmantown. Bascom, 299-1662 or 255-4772.

AVAILABLE Aug. 1, 2-bdr. unfurnished apt., carpets and drapes, 4521 Douglas MacArthur NE. Daniel, 268-8335 after 6.

SPACIOUS unfurnished 2-bdr. den home, NE heights. Apodaca, 5813 Alta Monte NE, 256-2552 or 299-3789.

MODERN, furnished, insulated Sandia Mtn. cottage, suitable for 1 or 2, water and butane paid, carport, possible carpool, $45/month. McMillin, 282-3226.

LOST AND FOUND

LOST: man's wrist watch; key; three keys; brief case; glass case; key case, black, foldover; wedding band. LOST AND FOUND, Bldg. 610, tel. 264-2757.

Airblast from Canadian H.E. Shot To be Monitored by Sandians

Sandia personnel will be in Alberta, Canada, to make microbarograph measurements of airblast waves from a 500-ton high-explosive experiment scheduled by the Canadian Defence Research Establishment for Aug. 8.

The measurements will be taken 120 to 140 miles west of the blast site at Suffield and will be used by the U.S. Atomic Energy Commission Plowshare Project (peaceful applications of nuclear explosives). Information from "Prairie Flat" (as the experiment has been named) can be used to help predict disturbances at long distances from nuclear excavations. The blocks of explosives will be stacked in a spherical configuration.

Distant propagation of airblast waves is caused by warm temperatures and high winds near 50 mile altitudes. There is expected to be a band of audible sound extending 100 to 150 miles west of the test, due to high altitude winds blowing from the east in summer.

Eighteen sensors, spaced one to two miles apart, will be operated on an east-west line. Six camper-trucks will house the recording equipment. Atmospheric variations along the lengthy propagation path are expected to cause different noise levels at different points in the audibility zone, and the large number of measurements was designed to describe the statistical distribution of these levels.

Three smaller explosive charges will be fired at 15-minute intervals before and after the main test event. These 2400-lb. high explosives will be recorded for statistical comparison to show whether large yields are affected by atmospheric irregularities.

Sandia personnel participating in the operation will be A. B. Church (9132), project officer; J. W. Reed (9111), scientific officer; microbarograph operators D. A. McFadden (9132), J. E. Clark (7322), W. N. Talley (2356), B. P. Neumon (2641), R. W. Jones (2356), T. A. Montoya (4615); E. L. Hansen (7223), communications; and E. M. Beezley (4644), logistics. They will be located near High River, which is south of Calgary.

R. T. Meyer Appointed As Chairman of Science Training Program Panel

Richard T. Meyer of Aerospace Sciences Division 5271 is serving as chairman of a panel responsible for a six-week Summer Science Training Program sponsored by the New Mexico Academy of Science.

The program, financed by the State of New Mexico, is for selected 11th grade high school students of the state to attend a six week college session, concentrating on some aspect of science.

Purposes of the program are to provide intellectual stimulation in the sciences for outstanding high-school students within the state, to enrich local high-school programs by returning to the high school youngsters who have had a wider exposure to and understanding of science, and to assist in upgrading the level of science education in New Mexico.

Dick has met with other members of the panel at New Mexico State University at Las Cruces to observe this summer's program. Courses are given in optical physics, microwave spectroscopy, signal analysis and information theory. Laboratory equipment includes lasers and spectrographs. Thirty-two students from 21 counties in the state are attending.

"The staff at NMSU is providing an excellent program," Dick says. "The content and the educational method are extremely successful. You can see it in the enthusiasm of the students. The objectives of the program are being met."

The Academy of Science panel is responsible for reviewing the program, setting policies and planning future programs.

"We are currently involved," Dick says, "in inviting proposals from other state educational institutions to conduct the program in the future. Indirectly, we hope to stimulate a number of similar programs in biology, chemistry, geology—in fact in all aspects of science—in other state colleges. The benefits to the students are direct and worthwhile. However, the indirect benefits to the high schools, when these students who have completed the program return, are more significant."

Dick has been a member of the New Mexico Academy of Science since 1960. He served as chairman of the Academy's 1967 annual meeting in Albuquerque.

Sandia Safety Signals

You Gotta Do It!

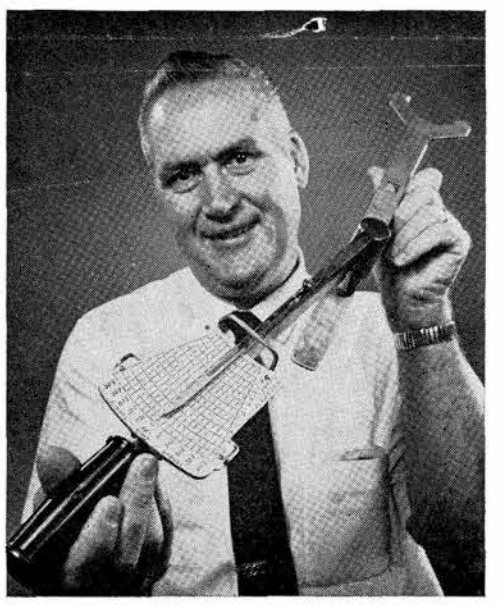
You can't wear shoes without putting your feet in them. You can't eat unless there is food. You can't swim unless you get into the water. You can't be free of harm unless you practice safety.

Speed Recorder Law

A bill has been introduced in Congress to require trucks and buses to be equipped with speed recording devices to provide a warning device to drivers and an accurate record on a continuing basis for owners, drivers and law enforcement agencies.

Just a Toy

Select toys suitable for the age, abilities and attitudes of your children. Playthings for babies should be too large for the experimenting infant to put into his mouth, nose or ears. Toddlers' toys should be soft, washable — nothing that will cut or gouge at the falling-down age.



JOHN HILLER (1613) displays his "Torque Wrench Indicator and Compensator" which provides for direct reading of torque when extensions and adaptors are used on a standard wrench.

John Hiller Awarded Patent for Torque Wrench Indicator

John B. Hiller of Technical Training Division 1613 was granted a patent last week for his invention of a "Torque Wrench Indicator and Compensator."

A torque wrench measures the degree of "tightness" of a nut. In many assemblies, this tightness is critical for mechanical tolerances and must be measured accurately. However, when extensions or special adaptors are used on the torque wrench, the accuracy of the scale is affected, and compensating calculations must be made.

John's invention provides a multiple scale marked in torque and length units with a sliding pointer which can be adjusted to match the length of the extension. This allows direct reading of torque and eliminates the need for making compensating calculations.

He obtained a release from Sandia to take private patent action. The patent, No. 3391573, is in his name, and he currently plans to market the device.



TREASURE CHEST of goodies awaits the yo-ho-ho crew tomorrow night at the Coronado Club's annual Buccaneer's Bash. Liz Robinson (7411) reminds you of the seafood dinner, special entertainment, swimming and dancing scheduled to start at 6 p.m. Pick up your tickets from the Club office by 9 p.m. tonight.

Coronado Club Activities

Pirate Bash Tomorrow

A lot of pirates, buccaneers and yo-ho-ho will add up to some mid-summer madness mañana at the Coronado Club. The annual Buccaneer's Bash will be launched with the opening of the grog keg at 6 p.m.



Judith Sierer

Try some clam chowder, lobster tails and other assorted goodies for dinner from 7 to 8:30 p.m. Waltzing the plank to Tom Kelly's hornpipers takes place from 9 to 1 a.m. The twin pools will be open for swimming from 10 to midnight.

One of the highlights of the evening will be a special entertainment, "Songs Sweet and Sour," by Judith Sierer, a talented artist who has appeared in "Marriage Go Round" with the Albuquerque Little Theatre and "Showstopper" with the Albuquerque Civic Light Opera. She will be accompanied by Joan Midyette at piano. The show is scheduled at 8:30 p.m.

Tickets ($3.50 for members, $4 for guests) must be picked up from the Club office by 9 p.m. tonight.

* * *

Social Hours

Tonight, Rex Elder will make the happy music while the seafood buffet is spread. The buffet costs $1.25 for adults, $1 for kids.

On Friday, Aug. 2, the Club's famous chuckwagon roast beef will be wheeled out while Tommy Kelly and the smiling Irishmen occupy the bandstand.

Fried chicken is the buffet feature scheduled Friday, Aug. 9. Max Madrid will play for dancing.

Pat Reich and piano entertain in the main lounge each Friday from 9 to midnight.

Bridge

Duplicate bridge meets Mondays at 7 p.m. Ladies bridge meets Thursday, Aug. 1, at 1:15 p.m.

Special Luncheon

Szabo Food Service, Inc., Coronado Club concessionaire, is offering a steak fry as the monthly 99-cent luncheon special Thursday, Aug. 1. The menu includes a luncheon steak, oven browned potatoes, mixed green salad, garlic bread, dessert and coffee or tea. The special will be available at the Club, in Bldg. 839 cafeteria and Area III cafeteria.

* * *

Annual Meeting

Annual meeting of the membership of the Coronado Club is scheduled at 8 p.m. Monday, Aug. 5. Six new members of the board of directors will be elected. A slate of candidates will be presented by the nominating committee, and nominations will also be accepted from the floor.

Nominated for board positions are John V. Durant (AEC), Robert H. Banks (5100), John K. Nakayama (1522), Max M. Newsom (1213), Howard A. Romme (4113) and Howard R. Shelton (3134).

* * *

Friday Patio Snack Bar Service

As a special service to parents attending Friday night social hour at the Club, the patio snack bar will continue to serve food until 8 p.m. The idea is that those youngsters who so desire may have hamburgers or hot dogs while parents bring their social hour buffet dinners to the patio and join the kids.

Congratulations

Mr. and Mrs. Kenneth Nielsen (7226) a daughter, Victoria Marie, June 17.